

TITLE PAGE

Response to the
Call for Nominations for the 2005 EPA Targeted Watersheds Grant Program:

Tangipahoa River Watershed: HUC Code 08070205

303(d) Impaired Subsegment # LA040701_00

"TANGIPAHOA RIVER WATER QUALITY IMPROVEMENT PROJECT"

Submitted By:

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ABSTRACT

The Tangipahoa River (Lake Pontchartrain Basin, southeast Louisiana) was a historic center for recreational activity. Currently the upper Tangipahoa River, from Interstate 12 to the Louisiana state line, is included on Louisiana's 303(d) List as impaired for fecal coliform levels by three sources: small and municipal wastewater treatment plants (WWTPs) and dairy farms. The Lake Pontchartrain Basin Foundation (LPBF) will target a portion of the watershed, between the municipalities of Tickfaw and Amite to implement the Tangipahoa River Water Quality Improvement Project. Based on a successful LPBF program, LPBF will partner with state agencies, through the Tangipahoa River Task Force (TRTF), to assist and educate owners/operators of WWTPs and dairy farms to decrease fecal coliform counts. By monitoring and modeling water quality throughout the project, LPBF expects to show at least a 20% decrease in fecal coliform / *E.coli* levels in tributaries and on the Tangipahoa River within three years.

LAKE PONTCHARTRAIN BASIN FOUNDATION
TANGIPAHOA RIVER WATER QUALITY IMPROVEMENT PROJECT

INTRODUCTION

The Tangipahoa Watershed: The Tangipahoa River Watershed is one of the largest watersheds in the Lake Pontchartrain Basin, a 10,000 mi² estuarine ecosystem on the Gulf of Mexico in southeast Louisiana. The Tangipahoa River is 61 miles long and its 520 mi² watershed covers most of Tangipahoa Parish on the northern shore of Lake Pontchartrain. Upper reaches of the watershed are characterized by pine and mixed hardwood forests and the lower reaches include wetlands such as bottomland-hardwood forests, swamps, and fresh to brackish water marshes. The Louisiana Department of Wildlife and Fisheries has designated the middle and upper reaches of the river (north of Interstate 12) as a scenic stream.

Historically, there was high recreational activity on the river, including swimming, fishing, boating, and tubing. Water quality on the river became a high-profile issue in 1988 when a group of Girl Scouts became ill while swimming. Since that time the river has become an icon for the importance of cleaning waterbodies, however it still remains polluted. The Tangipahoa River is included on the 2004 Impaired Waterbodies (303d) List due to high fecal coliform levels in the section of river extending from Interstate 12 to the state line (the portion denoted as a scenic stream). The fecal pollution derives from three sources: dairy farms and municipal and individual wastewater treatment plants (WWTPs). Seven of the nine municipal WWTPs are located in this stretch of river. Outside of the municipalities, businesses treat their sewage with individual WWTPs, subdivisions/ trailer parks treat sewage with small package plants, and houses/trailers have individual septic systems with discharges running to ditches and eventually to the river. The majority of the small, individual WWTPs do not function properly releasing fecal bacteria into the environment usually due to lack of knowledge of the owner/operator. In addition, there are approximately

165 operating dairy farms in the parish, the greatest concentration in Louisiana. Of those dairies, 74 have participated in programs to construct and cleanout waste lagoons.

Tangipahoa Parish is situated between two of the fastest growing parishes in the state, St. Tammany and Livingston Parishes, experiencing sprawl from New Orleans and Baton Rouge, respectively. While Tangipahoa is a mostly rural parish with dairy, strawberry farming, and timber as its economic staples, it is beginning to feel the impacts of sprawl, with development spreading from municipalities including Hammond and Amite. According to the 2000 census, Tangipahoa Parish's population grew over 17% in the 1990's (US Census, www.censusscope.org) and a greater rise is expected in the 2000's. Therefore, the time is right to focus a water quality improvement project on the Tangipahoa River.

Lake Pontchartrain Basin Foundation: The Lake Pontchartrain Basin Foundation (LPBF) was established in 1989 by an act of the Louisiana State Legislature as a non-profit organization to lead the preservation and restoration of the basin's ecosystem. In 1990-92, LPBF developed a grassroots, consensus-driven Comprehensive Management Plan (CMP) to identify major environmental problems in the watershed in partnership with the U.S. Environmental Protection Agency (EPA) Region 6; area universities; local, state, and federal agencies; elected officials; business and environmental groups; and basin citizens. The CMP identified four major long-term goals: 1) improve water quality, 2) protect essential habitat, 3) provide education/outreach, and 4) implement the plan. Utilizing the watershed approach for the past 15 years, LPBF has successfully implemented over 60 programs to address these goals and currently operates under an EPA-approved Quality Management Plan (QTRAK # 04-503).

LPBF's most recent endeavor to address the water quality goal of the CMP is its Sub-Basin Pollution Source Tracking Program, which began in January 2002. The Sub-Basin Program targets sub-watersheds of the Pontchartrain Basin to identify and correct sources of fecal pollution. Activities of the program include coordination of all agencies with water quality responsibility, intensive water quality monitoring, inspection of and assistance to WWTPs, data analysis using statistical methods and GIS, and

broad-based education/outreach, all covered under an EPA Quality Assurance Project Plan (QAPP). This program was piloted on the neighboring Bogue Falaya/Tchefuncte Watershed and achieved in-stream improvements of 20% to 80% on eight tributaries in three years.

In another program to address the water quality goal of the CMP and fecal pollution issues within the Pontchartrain Basin, LPBF initiated a dairy lagoon construction program in 1992 in cooperation with the U. S. Department of Agriculture's Natural Resources Conservation Service (NRCS), the Louisiana Department of Agriculture and Forestry's Office of Soil and Water Conservation, the Louisiana Department of Environmental Quality (LDEQ), and the Louisiana State University Agricultural Center's Extension Service (LSU Ag). From 1992-1994, LPBF cost-shared in the construction of 67 dairy lagoons in Tangipahoa Parish through this program. In 2001, working with the NRCS and LSU Ag, LPBF developed a program to assist dairy operators with the maintenance of their waste lagoons. In a cost-share program, dairy operators have the accumulated sludge in their waste lagoons extracted and applied to their land as fertilizer, under a nutrient management plan.

In 2005, LPBF combined the Sub-Basin Pollution Source Tracking (Q-Track # 05-130) and dairy assistance programs to address fecal pollution in the Tangipahoa Watershed. Through the program, LPBF has assessed that, corresponding to the 303d list, tributaries north of I-12 display greater fecal coliform counts (average count: 917 mpn) than those below I-12 (average count: 272 mpn) (refer to map, Appendix C). Based on this assessment, the proposed project will be implemented in the upper portion of the basin to achieve measurable water quality improvements, in accordance with the CMP.

PROJECT DESCRIPTION

Project Name: Tangipahoa River Water Quality Improvement Project

LPBF will implement its Tangipahoa River Water Quality Improvement Project in the most impacted portion of the Tangipahoa River (from the Town of Amite to the Town of Tickfaw) and the streams discharging into

this section, Big Creek and Sweetwater Creek, (a total of 126 mi²) in a 3-year project (refer to map, Appendix C). The project goal is the achievement of a significant reduction in fecal coliform and *E.coli* counts (as was achieved in the Bogue Falaya/Tchefuncte project, 20%-80%) in the streams and the river. LPBF will show in-stream improvements by integrating all aspects of the project, including assistance, technical training, and innovative technology for WWTP owners/ operators (including individual systems and municipalities) and dairy operators and extensive public education. Activities will be coordinated through the collaborative effort of the Tangipahoa River Task Force (TRTF), a multi-agency coalition devoted to water quality improvements on the river. By eliminating the sources of pollution on the most impacted section of the river, this project will benefit the entire Tangipahoa River Watershed.

Project 1) WWTP Assistance

Goal: LPBF will assist WWTP owners/operators within the targeted watershed to reduce the levels of enteric pathogens significantly (at least 20%, as indicated by fecal coliform and *E.coli* counts).

Task 1) Assistance to Small WWTPs: LPBF, in partnership with the LDEQ's Small Business Assistance Program, will offer education, technical assistance, and assistance with permits to the owner/operators of WWTPs in the target watershed. When the LPBF visits a facility, the WWTP will be inspected for functionality and the paperwork and permitting of the plant will be reviewed. LPBF will offer technically-sound, economical, and innovative ways for the WWTP to come into compliance. The LPBF, in partnership with LDEQ and the Louisiana Department of Health and Hospitals (LDHH), will also provide technical training sessions for WWTP operators to assist with their continuing education.

Task 2) Assistance to Municipalities: The LPBF will assist municipalities with the operations of WWTPs and inspection of collection systems. LPBF has worked with the four municipalities north of Interstate-12 that directly discharge into the river and has specified the need for the innovative technology of flow-proportional disinfection on the municipal plants. LPBF will work with plant operators to optimize treatment through technical assistance, modification to plants, and installation of flow-proportional

disinfection as a means to reduce fecal loading. This will be the first large-scale application of flow-proportional disinfection in the Pontchartrain Basin and will serve as a model for other sub-watersheds.

Task 3) Education: LPBF will air a previously produced public service announcement (PSA) on WWL-TV (a local affiliate of CBS) and, with the assistance of LDEQ and LDHH, distribute an LPBF-produced brochure to educate homeowners on the potential water quality impacts of home wastewater.

Summary of Costs: TW: \$ 351,382.50 (refer to Table 1, Section B for cost breakdown)

MATCH: \$ 240,550.00 (PSA air time, LPBF board time and corporate grant, and costs incurred by owners to repair/upgrade WWTPs; see Nonfederal/Match- Table 1)

Schedule for Implementation: Technical assistance will be performed for the entirety of the project. The installation of the flow-proportional disinfection will occur in the first year of the project, with results to be measured for the remainder of the project.

Milestones: The milestones for this project are: 1) assist 80 commercial treatment units within the targeted watershed per year, 2) perform two technical training sessions per year, 3) install (in the first year) and measure the impacts of municipal flow-proportional disinfection within the Tangipahoa River, and 4) air on television an LPBF-produced PSA for the entirety of the project.

Date for determining if goal is realized: end of project, however, LPBF and agencies will meet regularly on the status of the inspections through TRTF data review. All project activities and water quality trends/status will be analyzed and summarized in bi-annual reports.

Project 2) Dairy Assistance:

Goal: The two tasks of this project will be performed in tandem with another LPBF project. The LPBF is partnering with the NRCS, through a \$ 440,000 program, to perform waste lagoon cleanouts, decommission lagoons, and create model farms that use best management practices to control runoff.

Task 1) Dairy Education/Outreach: LPBF, in coordination with the TRTF, will perform education and outreach to dairy farmers, produce educational materials, hold forums to promote the use of best

management practices and the lagoon cleanout program, and provide assistance to farmers closing dairies (and lagoons).

Task 2) Dairy Lagoon Inspection & Cleanout: LPBF will partner with LDEQ to investigate dairies for wastewater discharges extending off the property. Those found to have undocumented discharges will be assisted with the LPDES permit application and educated about dairy wastewater lagoons.

Summary of Costs: TW: \$124,545.00 (refer to Table 1, Section B for cost breakdown)

MATCH: \$ 66,100.00 (LPBF board time and corporate grant and costs incurred by owners to repair/build/cleanout dairy waste lagoons; see Nonfederal/Match- Table 1)

Schedule for Implementation: To be performed for the entirety of the project.

Milestones: The milestone for this project is: 1) inspect, assist, and provide education for all 60 dairies (20/yr) and clean out a maximum of 51 waste lagoons (17/yr) within the targeted watershed.

Date for determining if goal is realized: end of project, however, progress will be measured bi-monthly through TRTF data review. All project activities and water quality trends/status will be analyzed and summarized in bi-annual reports.

Monitoring & Evaluation:

The LPBF will monitor water quality, perform statistical and GIS analyses, and perform watershed modeling as performance measures and indicators of reaching established progress goals.

1) Water Monitoring: LPBF intensively monitored water quality in the Tangipahoa Watershed in 2004 and the first half of 2005 to establish baseline conditions (Q Track # 05-130). Targeted water quality monitoring serves to locate sources in what is typically described as a “non-point source” situation. In addition, continued monitoring on the Tangipahoa River and target tributaries will document the improvement of water quality due to implementation of the program.

Sites will be monitored bi-weekly for the primary parameters of fecal coliform, *E.coli*, and nutrients (including nitrogen and phosphorus) as indicators of water quality improvement. For the fecal coliform, *E.coli*, and nutrient analyses, one "grab" sample of 120 ml volume will be taken at each site and analyzed at an LDEQ/EPA-approved laboratory. The secondary parameters of water temperature (°C), pH, dissolved oxygen (mg/L), specific conductance (µS), and turbidity (NTU) will be monitored *in situ* at each site for use in the water quality modeling component of the study. The water monitoring methodology, equipment calibration and upkeep, and data quality assurance will be performed according to *Standard Methods for the Examination of Water and Wastewater, 20th Edition* (1998) and addressed in the QAPP.

Summary of Costs: TW: \$ 281,692.50 (refer to Table 1, Section B for cost breakdown)

MATCH: \$ 52,000.00 (discount from the lab utilized in the project and LPBF board time and corporate grant; see Nonfederal/Match- Table 1)

Performance Measures: The water quality monitoring will document improvement in water quality via a reduction in fecal coliform, *E.coli*, and nutrient counts.

Progress Goals: All project activities and water quality trends/status will be analyzed and summarized in bi-annual reports. Additionally, the TRTF will review data trends regularly.

2) Data Analysis & Watershed/Water Quality Modeling:

Task 1) Statistical/GIS Analysis: The LPBF will utilize Microsoft Excel and the statistical program JMP (a SAS-based program) to analyze statistical trends. The LPBF's GIS will use ArcView GIS 8.3 to locate dairies, municipal WWTPs, local WWTP's, and other facilities of interest. LPBF will utilize and ground-truth GIS maps, digital images (including Landsat TM and DOQQ images), and data layers provided by several government entities as well as creates new data layers based on the project's findings.

Task 2) Water Quality Modeling: LPBF will partner with the University of New Orleans' Freeport McMoRan Center for Environmental Modeling at the Pontchartrain Institute for Environmental Sciences to assess the progress of the project. Utilizing in-stream water quality models (such as BASINS, SWAT, and

QUAL-E-2), and by identifying point and non-point loads resulting from all delineated watersheds surrounding the study area, the Center will aid LPBF in modeling baseline conditions at the outset of the projects. The Center will then use the models to assess water quality improvements, as well as forecast and project impacts or anticipated impacts of the project.

Summary of Costs: TW: \$ 141,622.00 (refer to Table 1, Section B for cost breakdown)

MATCH: \$ 10,000.00 (LPBF board time and corporate grant; see Nonfederal/Match- Table 1)

Performance Measures: Statistical analysis and modeling will document improvements in water quality via a reduction in fecal coliform, *E.coli* counts, and nutrient counts.

Progress Goals: A baseline will be established at the outset of the project. The system will be modeled bi-annually throughout the course of the project.

Expected Outcomes:

The LPBF expects to show measurable in-stream improvements on at least two tributaries and a portion of the Tangipahoa River itself. Water quality improvements will be accomplished via education and technical assistance to small and municipal WWTP's and dairy farms located within the targeted portion of the Tangipahoa River Watershed. When this program was piloted on the Bogue Falaya/Tchefuncte Watershed, water quality improvements were seen on 8 streams within 3 years, the most important of which was the Bogue Falaya. Improvements will be measured with bi-weekly water quality monitoring, which will be modeled to visually show water quality improvements for enteric pathogen indicators and nutrients. Data collected through the project will be compiled and analyzed bi-annually. The project will be judged to be successful by a 20%, up to an 80%, reduction in fecal coliform and *E.coli* counts in the tributaries and in the Tangipahoa River over 3 years.

Project Compliments Mandates

This project addresses the swimmable goal of the Federal Clean Water Act. On April 9, 2005, Louisiana Governor Blanco announced that LDEQ's top priority is to reduce the Impaired Waterbodies List by 25% by 2012. LPBF is working with LDEQ to model the new state-wide program after LPBF's successful Sub-Basin Pollution Source Tracking Program. The Tangipahoa River Water Quality Improvement Project will be directly in-line with the Governor's goal. The project will also fulfill goals of the TRTF member agencies, including LDEQ's Nonpoint Source Program; NRCS' mission to help people conserve, maintain, and improve our natural resources and environment; and adherence to the LDHH's Louisiana Sanitation Code.

Partners

As an independent, environmental non-profit, the Lake Pontchartrain Basin Foundation has the experience and the skills to lead the Tangipahoa River Task Force, bringing together diverse entities from the public and private sectors and coordinating efforts. The historical fact is that many state agencies and local entities have not been well informed of each other's projects nor held accountable in a peer situation for their own projects. This task force serves to keep all entities on the same page and accountable for their portion of the project. Agencies and entities on the Tangipahoa River Task Force are: Lake Pontchartrain Basin Foundation; Louisiana Department of Environmental Quality; Louisiana Department of Health and Hospitals; Natural Resource Conservation Service; Louisiana State University's Agricultural Extension Program; Tangipahoa Parish; the municipalities of Tickfaw, Kentwood, Tangipahoa, Fluker, and Amite, within Tangipahoa Parish; Girl Scouts of Louisiana; Louisiana Cooperative Extension Service; Tangipahoa Futures Network; and Citizens For A Clean Tangipahoa. Additional partners are the Hammond Daily Star newspaper, which will provide free ad space for the publication of water quality monitoring results, and WWL-TV, which will provide a portion of free airtime for a public service announcement.

OUTREACH ACTIVITIES

An integral focus of this program is education and outreach in many forms, from technical assistance offered to WWTP and lagoon owners/operators to outreach/awareness for all Tangipahoa citizens.

Outreach to all citizens: LPBF has partnered with a local newspaper, the Hammond Daily Star newspaper, to publish the data obtained in the river bi-weekly. Data will also be available on the LPBF website (www.saveourlake.org). The LPBF will hold several press conferences regarding the project and will air a previously produced PSA on WWL-TV (a top-rated local CBS affiliate) to inform citizens of their role in preventing pollution from their homes and businesses. The LPBF has also produced and will distribute, with the assistance of TRTF members, a pamphlet to assist owners of small WWTPs.

Outreach to business owners & plant operators: LPBF will provide daily assistance to plant owners/operators. Assistance will be both educational and technical information about the plant. LPBF, in cooperation with the LDEQ and LDHH, will also hold two classes in plant operation topics per year. These will count for continuing education credits for plant operators.

Outreach to dairy operators: As with the WWTP's, LPBF, in partnership with LDEQ, NRCS, and the LSU Ag. Center, will provide assistance, produce a brochure, and hold outreach events to encourage farmers' participation in the dairy assistance program.

Outreach to other agencies/entities involved: Meetings of the TRTF will be used to share information about the project with other agencies/entities and regions. LPBF will also share data with researchers from area universities and research stations.

Outreach Regionally, Nationally, Internationally: LPBF will share the successes of the project through presentations at conferences, publication in journals, and publication on the LPBF website. LPBF will encourage duplication of the program in other sub-watersheds in the Pontchartrain Basin and the state of Louisiana.

Table 1. BUDGET INFORMATION - EPA Targeted Watersheds Grant Program

SECTION A - BUDGET SUMMARY					
Project, Activity, or Work Plan Element			Target Wat	Non-Federal	Total
1. Wastewater Treatment Plant Assistance			\$351,382.50	\$240,550.00	\$517,882.50
2. Dairy Assistance			\$124,545.00	\$66,100.00	\$190,645.00
3. Water Quality Monitoring			\$281,692.50	\$52,000.00	\$333,692.50
4. Analysis and Modeling			\$141,622.50	\$10,000.00	\$151,622.50
TOTALS			\$899,242.50	\$368,650.00	\$1,267,892.50
SECTION B - BUDGET CATEGORIES					
	Watershed Project, Activity, or Work Plan Element				
Budget Categories	1	2	3	4	Total
a. Personnel	\$42,000.00	\$87,000.00	\$78,000.00	\$66,000.00	\$273,000.00
b. Fringe Benefits	\$6,300.00	\$13,050.00	\$11,700.00	\$9,900.00	\$40,950.00
c. Travel	\$0.00	\$6,000.00	\$18,000.00	\$0.00	\$24,000.00
d. Equipment	\$20,000.00	\$0.00	\$10,500.00	\$0.00	\$30,500.00
e. Supplies	\$0.00	\$0.00	\$4,500.00	\$0.00	\$4,500.00
f. Contractual	\$235,000.00	\$0.00	\$120,000.00	\$45,000.00	\$400,000.00
g. Construction	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
h. Other	\$2,250.00	\$2,250.00	\$2,250.00	\$2,250.00	\$9,000.00
i. Total Direct Charges	\$305,550.00	\$108,300.00	\$244,950.00	\$123,150.00	\$781,950.00
j. Indirect Charges	\$45,832.50	\$16,245.00	\$36,742.50	\$18,472.50	\$117,292.50
Total Targeted	\$351,382.50	\$124,545.00	\$281,692.50	\$141,622.50	\$899,242.50
Non-Federal Match	\$240,550.00	\$66,100.00	\$52,000.00	\$10,000.00	\$368,650.00
TOTALS	\$591,932.50	\$190,645.00	\$333,692.50	\$151,622.50	\$1,267,892.50

Non-Federal Match (*Total = 29.1%*)

	WWTP	Dairy	Wat Mon	Analys/Mod	Total
Media	\$110,550.00	\$0.00	\$0.00	\$0.00	\$110,550.00
WWTP upgrades	\$120,000.00	\$0.00	\$0.00	\$0.00	\$120,000.00
LPBF	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$40,000.00
Lab Discount	\$0.00	\$0.00	\$42,000.00	\$0.00	\$42,000.00
Dairy Upgrades	\$0.00	\$56,100.00	\$0.00	\$0.00	\$56,100.00
Total	\$240,550.00	\$66,100.00	\$52,000.00	\$10,000.00	\$368,650.00